Preface

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Version 1.0

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This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.
Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilieur du Canada.

About the Manual

The manual consists of the following:

Chapter 1
Introducing the Motherboard
Describes features of the motherboard.
Go to ⇨ page 1

Chapter 2
Installing the Motherboard
Describes installation of motherboard components.
Go to ⇨ page 7

Chapter 3
Using BIOS
Provides information on using the BIOS Setup Utility.
Go to ⇨ page 27

Chapter 4
Using the Motherboard Software
Describes the motherboard software
Go to ⇨ page 45

Chapter 5
Hybrid Graphics® Technology Support
Describes the Hybrid Graphics® Technology
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Chapter 6
Setting Up AMD SB710 RAID Configuration
Describes the AMD SB710 RAID Configuration
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Setting Up eJIFFY
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Chapter 1
Introducing the Motherboard

Introduction

Thank you for choosing the A880GM-AD3 motherboard. This motherboard is a high performance, enhanced function motherboard that supports socket for AM3 Phenom™ II/Athlon™ II/ Sempron™ processors for high-end business or personal desktop markets.

The motherboard incorporates the AMD 880G Northbridge (NB) and SB710 Southbridge (SB) chipsets. The Northbridge supports the HyperTransport™ 3.0 interface. The memory controller supports DDR3 memory DIMM frequencies of 1600 (OC)/1333/1066/800*1. It supports four DDR3 slots with maximum memory size of 32 GB*2. One PCI Express x16 slot, intended for Graphics Interface, are fully compliant to the PCI Express (version 2.0). In addition, two PCI Express x1 slots are supported.

The SB710 Southbridge supports three PCI slot which is PCI v2.3 compliant. It integrates USB 2.0 interface, supporting up to twelve functional ports (six USB ports and three USB 2.0 headers support additional six USB ports). One onboard IDE connector supports two IDE devices in Ultra ATA 133/100/66 modes. The Southbridge integrates a Serial ATA host controller, supporting five SATA ports with maximum transfer rate up to 3.0 Gb/s each. It provides AMD SATA RAID configuration with RAID 0, 1 and 10 modes supported.

There is an advanced full set of I/O ports in the rear panel, including one DVI port, one VGA port, one LAN port, one eSATA port, one optical SPDIFO port, six USB ports, and audio jacks for microphone, line-in and 8-channel line-out.

In addition, this motherboard comes with a power on button, a reset button and a CLR_CMOS button. The processor can be overclocked when *CPU Over-clocking Func.* is set to *Enabled* in M.I.B.II (MB Intelligent BIOS II).

**1. Due to AMD CPU spec limitation, please refer to Memory QVL for more information.*

**2. Due to the DRAM maximum size is 4GB at present, the memory maximum size we have tested is 16GB.*

Feature

Processor

This motherboard uses a socket AM3 that carries the following features:

- Accommodates AM3 Phenom™ II/Athlon™ II/ Sempron™ processors
- Supports HyperTransport™ (HT) 3.0 interface speeds
- Support transfer rate up to 5200 mega-transfers per second

HyperTransport™ Technology is a point-to-point link between two devices, it enables integrated circuits to exchange information at much higher speeds than currently available interconnect technologies.

This board supports CPU up to 95W TDP only; you can refer to AMD website to check your CPU.

Chipset

The AMD 880G Northbridge (NB) and SB710 Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance.

AMD 880G (NB)

- One x4 A-Link Express III interface for connection to an AMD Southbridge. The A-Link Express III is a proprietary interface developed by AMD basing on the PCI Express technology, with additional Northbridge-Southbridge messaging functionalities. It supports the PCIe Gen 2 transfer rate of 5 GT/s, and is backward compatible with the A-Link Express II interface.
- Supports one PCI-Express x16 Gen2 graphics link
- Supports two PCI-Express x1 slots
- Fully supports ACPI states S1, S3, S4 and S5
- Supports ATI Radeon HD4250 Graphics*.
- Supports 16-bit up/down HyperTransport (HT) 3.0 interface up to 4.4 GT/s.

SB710 (SB)

- Compliant with PCI 2.3 specification at 33 MHz
- Supports five Serial ATA devices which speeds up to 3.0 Gb/s
- Integrated USB 2.0 Host Controller supporting up to twelve USB 2.0 ports
- Integrated IDE controller supports Ultra ATA 133/100/66 modes
- Supports integrated RAID0, RAID1, and RAID 10 (requires use of 4 or more SATA ports) functionalities across all 5 ports

Memory

- Supports DDR3 1600 (OC)/1333/1066/800 DDR3 SDRAM with Dual-channel architecture
- Accommodates four unbuffered DIMMs
- 4 x 240-pin DDR3 DIMM sockets support up to 32 GB*

** Due to the DRAM maximum size is 4GB at present, the memory maximum size we have tested is 16GB*

Audio

- All DACs support 192K/96K/48K/44.1KHz DAC sample rate
- High-quality analogy differential CD input
- Software selectable 2.5V/3.75V VREFOUT
- Meets Microsoft WLP3.10 audio requirements
- Direct Sound 3D™ compatible

Onboard LAN

- Onboard PCI-Express LAN controller
- Supports 10/100/1000 Mbit Ethernet (optional 10/100 Ethernet only available)
- Support Wake-on-LAN and remote wake-up

Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x16 slot for Graphics Interface
- Two PCI Express x1 slots
- Three 32-bit PCI v2.3 compliant slots
- One IDE connector supporting up to two IDE devices
- Five 7-pin SATA connectors

This motherboard supports Ultra DMA bus mastering with transfer rates of 133/100/66 MB/s.

Integrated I/O

The motherboard has a full set of I/O ports and connectors:

- One PS/2 Keyboard & PS/2 mouse
- One DVI port
- One VGA port
- One LAN port
- One eSATA port
- One optical SPDIFO port
- Six USB ports
- Audio jacks for microphone, line-in, 8-channel line out and Optical SPDIF Out

BIOS Firmware

The motherboard uses AMI BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing

The firmware can also be used to set parameters for different processor clock speeds. And it is available to adjust the voltages of the CPU, NB and SB.

1. Some hardware specifications and software items are subject to change without prior notice.

2. Due to chipset limitation, we recommend that motherboard be operated in the ambiance between 0 and 50°C.

Specifications

CPU	• AM3 socket for Phenom™ II/Athlon™ II/ Sempron™ processors • Supports “Hyper-Threading” technology CPU • Support transfer rate up to 5200 mega-transfers per second
Chipset	• AMD 880G & AMD SB710
Memory	• Dual-channel DDR3 1600 (OC) memory architecture • 4 x 240-pin DDR3 DIMM sockets support up to 32 GB* • Supports DDR3 1600 (OC)/1333/1066/800 DDR3 SDRAM ** Due to the DRAM maximum size is 4GB at present, the memory maxi-mum size we have tested is 16GB*
Expansion Slots	• 1 x PCI Express x16 slot • 2 x PCI Express x1 slots • 3 x PCI slots
Storage	• Supported by AMD SB710 Express Chipset • 5 x Serial ATA 3.0 Gb/s Host Controllers • Supports RAID 0, 1, and 10 • 2 x Ultra DMA133/100/66 devices • 1 x eSATA 3.0 Gb/s device
Audio	• ALC888S 8-ch HD audio
LAN	• Realtek8111DL GigaLAN Controller (Colay RTL8103EL 10/100 LAN Controller
Rear Panel I/O	• 1 x PS/2 keyboard & PS/2 mouse connector • 6 x USB ports • 1 x DVI port • 1 x VGA port • 1 x eSATA port • 1 x RJ45 LAN connector • 1 x Optical SPDIFO port • 1 x Audio port (1x Line in, 4x Line out, 1x Optical SPDIF Out)
Internal I/O Connectors & Headers	• 24-pin ATX Power Supply connector, 4-pin 12V connector • 1 x CPU_FAN • 1 x Power on LED (Green Light) • 1 x SYS_FAN • 1 x Stand by LED (Red Light) • 1 x NB_FAN • 5 x SATA 3Gb/s connectors • 3 x USB 2.0 headers support additional 6 USB ports • 1 x Front panel header • 1 x Chassis Intrusion Detect header • 1 x Front panel audio header • 1 x Speaker header • 1 x Reset button • 1 x CD in header • 1 x Power on button • 1 x Clear CMOS button
System BIOS	• AMI BIOS with 8Mb SPI ROM • Supports Plug and Play 1.0A, APM 1.2, Multi Boot, DMI • Supports ACPI revision 3.0 specification
Form Factor	• ATX Size, 305mm x 220mm

Motherboard Components

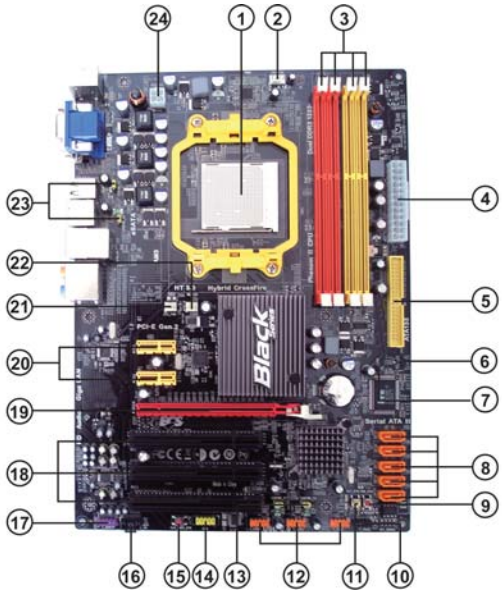


Table of Motherboard Components

LABEL	COMPONENTS
1. CPU Socket	Socket for AM3 Phenom™ II/Athlon™ II/ Sempron™ processors
2. CPU_FAN	CPU cooling fan connector
3. DDR3_1~4	240-pin DDR3 SDRAM slots
4. ATX_POWER	Standard 24-pin ATX power connector
5. IDE	Primary IDE connector
6. SPK	Speaker header
7. CASE	Chassis detector header
8. SATA1~6	Serial ATA connectors
9. PWR_BTN	Power on button
10. F_PANEL	Front panel switch/LED header
11. RST_BTN	Reset button
12. F_USB1~3	Front panel USB headers
13. USBPWR_F1~2	Front panel USB power select jumpers
14. COM	Onboard serial port header
15. CLR_CMOS_BTN	Clear CMOS button
16. CD_IN	Analog audio input connector
17. F_AUDIO	Front panel audio header
18. PCI1~3	32-bit add-on card slots
19. PCIEX16	PCI Express x16 slot for graphics interface
20. PCIE1~2	PCI Express x1 slots
21. SYS_FAN	System cooling fan connector
22. NB_FAN	Northbridge cooling fan connector
23. USBPWR_R1~2	Rear panel USB PS/2 power select jumpers
24. ATX12V	4-pin +12V power connector

This concludes Chapter 1. The next chapter explains how to install the motherboard.

Chapter 2
Installing the Motherboard

Safety Precautions

- Follow these safety precautions when installing the motherboard
- Wear a grounding strap attached to a grounded device to avoid damage from static electricity
- Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard
- Leave components in the static-proof bags they came in
- Hold all circuit boards by the edges. Do not bend circuit boards

Choosing a Computer Case

There are many types of computer cases on the market. The motherboard complies with the specifications for the ATX system case. Firstly, some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Secondly, this motherboard supports two enhanced IDE drives. Make sure that your case has sufficient power and space for all drives that you intend to install.

Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the motherboard.

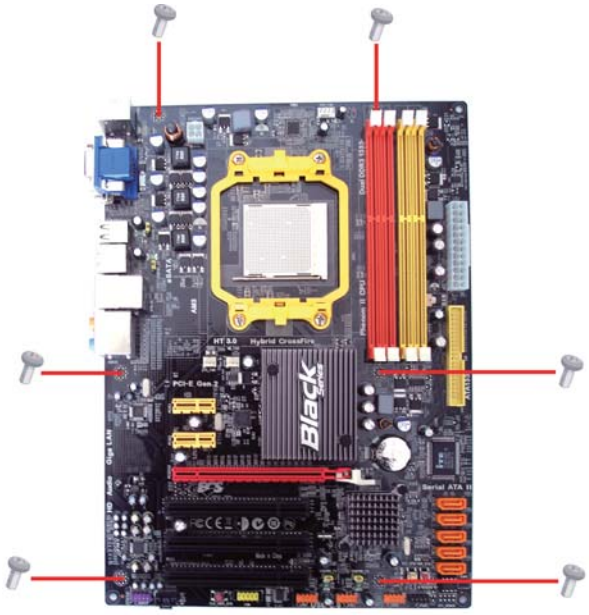
This motherboard carries an ATX form factor of 350 X 220 mm. Choose a case that accommodates this form factor.

Installing the Motherboard in a Case

Refer to the following illustration and instructions for installing the motherboard in a case.

Most system cases have mounting brackets installed in the case, which correspond the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.

Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.



Do not over-tighten the screws as this can stress the motherboard.

Checking Jumper Settings

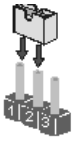
This section explains how to set jumpers for correct configuration of the motherboard.

Setting Jumpers

Use the motherboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

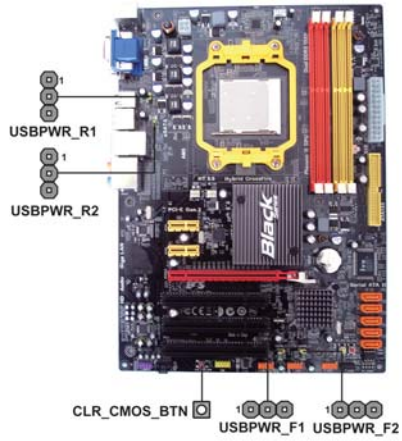
The illustrations show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN.

This illustration shows a 3-pin jumper. Pins 1 and 2 are SHORT.



Checking Jumper Settings & Clear CMOS Button

The following illustration shows the location of the motherboard jumpers. Pin 1 is labeled.



Jumper Settings

Jumper	Type	Description	Setting (default)	
CLR_CMOS_BTN	button	CLEAR CMOS	NO PUSH: NORMAL PUSH: CLEAR	**CLR_CMOS_BTN**
USBPWR_F1	3-pin	USB Power Cotroller	1-2: VCC5 2-3: 5VSB	1 **USBPWR_F1**
USBPWR_F2	3-pin	USB Power Cotroller	1-2: VCC5 2-3: 5VSB	1 **USBPWR_F2**
USBPWR_R1	3-pin	USB Power Cotroller	1-2: VCC5 2-3: 5VSB	1 **USBPWR_R1**
USBPWR_R1	3-pin	USB Power Cotroller	1-2: VCC5 2-3: 5VSB	1 **USBPWR_R2**

1. To avoid the system unstability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Default Settings" and then "Save & Exit Setup".

2. Make sure the power supply provides enough 5VSB voltage before selecting the 5VSB function.

3. It is required that users place the USBPWR_F1~2 & USBPWR_R1~2 cap onto 2-3 pin rather than 1-2 pin as default if you want to wake up the computer by USB/PS2 KB/Mouse.

Installing Hardware

Installing the Processor

Caution: When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the motherboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the motherboard, you may cause serious damage to the motherboard or its components.

On most motherboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.

Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.

Before installing the Processor

This motherboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these settings by making changes to jumpers on the motherboard, or changing the settings in the system Setup Utility. We strongly recommend that you do not over-clock processors or other components to run faster than their rated speed.

Warning:

1. Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.

2. Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.

This motherboard has a Socket AM3 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

Fail-Safe Procedures for Over-clocking

When end-users encounter failure after attempting over-clocking, please take the following steps to recover from it.

1. Shut down the computer.

2. Press and hold the “Page Up Key (PgUp)” of the keyboard, and then boot the PC up.

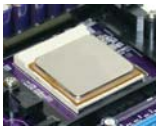
3. Two seconds after the PC boots up, release the “Page Up Key (PgUp)”.

4. The BIOS returns to the default setting by itself.

CPU Installation Procedure

The following illustration shows CPU installation components.

1 Install your CPU. Pull up the lever away from the socket and lift up to 90-degree angle.
2 Locate the CPU cut edge (the corner with the pin hold noticeably missing). Align and insert the CPU correctly.
3 Press the lever down and apply thermal grease on top of the CPU.
4 Put the CPU Fan down on the retention module and snap the four retention legs of the cooling fan into place.
5 Flip the levers over to lock the heat sink in place and connect the CPU cooling Fan power cable to the CPUFAN connector. This completes the installation.



To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 4800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

Installing Memory Modules

This motherboard accommodates four memory modules. It can support four 240-pin DDR3 1600 (OC)/1333/1066/800. The total memory capacity is 32 GB*.

** Due to the DRAM maximum size is 4GB at present, the memory maximum size we have tested is 16GB*

DDR3 SDRAM memory module table

Memory module	Memory Bus
DDR3 800	*400 MHz*
DDR3 1066	*533 MHz*
DDR3 1333	*667 MHz*
DDR3 1600	*800 MHz*

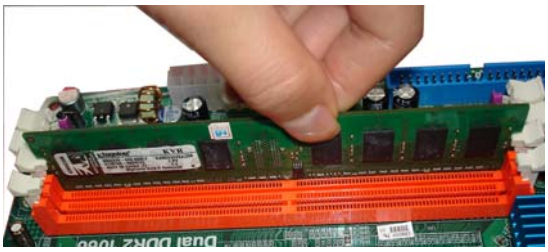
You must install at least one module in any of the four slots. Each module can be installed with 8 GB of memory.

Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.

Installation Procedure

Refer to the following to install the memory modules.

1 This motherboard supports unbuffered DDR3 SDRAM only.
2 Push the latches on each side of the DIMM slot down.
3 Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
4 Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
5 Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
6 Install any remaining DIMM modules.



For best performance and compatibility, we recommend that users install DIMMs in the sequence of DIMM3, DIMM4, DIMM1 and DIMM2.

Recommend configuration for best performance and compatibility

Number of DIMMs	DIMM 1	DIMM 2	DIMM 3	DIMM 4	AM2	AM2+ *
1					Single Channel	Unganged Mode
2					Dual Channel	Ganged Mode
3					Single Channel	Unganged Mode
4					Dual Channel	Ganged Mode

: operation with *normal performance*

: operation with *the best performance*

Table A: DDR3 (memory module) QVL (Qualified Vendor List)

The following DDR3 2100/1800/1600 (OC)/1333/1066 memory modules have been tested and qualified for use with this motherboard.

DDR3 800						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	Qimonda	IMSH51U03A1F1C-08E	Qimonda	IDSH51-03A1F1C-OBE	SS	512MB
DDR3 1066						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	Elixir	M2Y2G64CB8HC9N-BE			DS	2GB
2	Elixir	M2Y2G64CB8HC5N-BE	elixir	N2CB1G80CN-BE	DS	2GB
3	Elpida	PC3-8500U-7-00-AP	Elpida	J53088ASE-AC-E	SS	512MB
4	Hynix	HYMT112U64ZNF8-G8 AA	Hynix	HY5TQ1G831ZNFP-G8	SS	1GB
5	Hynix	HMT112U6AFP8C-G7N0 AA	Hynix	H5TQ1G83AFP G7C	SS	1GB
6	Hynix	HYMT125U64ZNF8-G8 AA	Hynix	HY5TQ1G831ZN FP-G8	DS	2GB
7	Hynix	HMT125U6AFP8C-G7N0 AA	Hynix	H5TQ1G83AFP G7C	DS	2GB
8	Kingston	KVR1066D3N7	Elpida	J5308BASE-AE-E 07500W220	SS	1GB
9	Micron	MT8JTF12864AY-1G1D1	Micron	7UD22D9JNL	SS	1GB
10	Micron	MT8JTF12864AY-1G1D1	Micron	8TD22 D9JNL	SS	1GB
11	Micron	MT16JTF25664AY-1G1D1	Micron	7UD22D9JNL	DS	2GB
12	Micron	MT16JTF25664AY-1G1D1	Micron	8WD22 D9JNL	DS	2GB
13	Micron	MT16JTF25664AZ-1G1F1	Micron	9EF22 D9KPV	DS	2GB
14	Micron	MT8JTF12864AZ-1G1F1	Micron	9NF22 D9KPT	SS	1GB
15	Ramaxel	RMR1810NA48E7F-1066-LF	NANYA	NT5CB128H8AN-DE	SS	1GB
16	Samsung	M378B2873DZ1-CF8 0818	SEC	HCF8 K4B1G0846D	SS	1GB
17	Samsung	M378B5673DZ1-CF8 0842	SEC	K4B1G0846D HCF8	DS	2GB
18	Kingston	KVR1066D3N7/512	Elpida	J5308BASE-AE-E 07340W065	SS	512MB
19	Qimonda	IMSH1GU03A1F1C-10F	Qimonda	IDSH1G-03A1F1C-10F FSS15085	SS	1GB
20	Qimonda	IMSH1GU03A1F1C-10G	Qimonda	IDSH1G-03A1F1C-10G FSS14526	SS	1GB
21	Qimonda	IMSH2GU13A1F1C-10F	Qimonda	IDSH1G-03A1F1C-10F FSS15085	DS	2GB
22	Qimonda	IMSH2GU13A1F1C-10G	Qimonda	IDSH1G-03A1F1C-10G FSS13467	DS	2GB
23	Hynix	HYMT112U64ZNF8-G8 AA	Hynix	HY5TQ1G831ZN FP-G8	SS	1GB
24	Samsung	M378B2873EH1-CF8	SEC	HCF8K4B1G0846E	SS	1GB
25	Samsung	M378B5673DZ1-CF8 0842	SEC	K4B1G0846D HCF8	DS	2GB
26	Aeneon	AEH760UD00-10FA98X	Aeneon	AEH93R10F 0737	SS	1GB
27	Elpida	EBJ10UE8BDF0-AE-F	Elpida	J1108BDSE-DJ-F	SS	1GB
28	Elpida	EBJ21UE8BDF0-AE-F	Elpida	J1108BDSE-DJ-F	DS	2GB
29	Corsair	CM3X1024-1066C7			SS	1GB
30	Nanya	M2Y2G64TU8HD5B-BD	elixir	N2CB1G80AN-CG	DS	2GB
31	Winchip	64A0TPHM8G17E	Elpida	J5308BASE-AC-E	SS	1GB

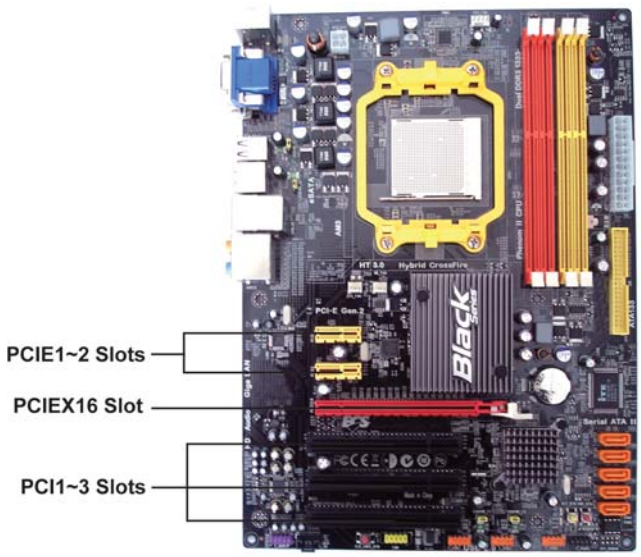
DDR3 1333						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	A-DATA	AD3U1333B1G9-B	Hynix	H5TQ1G83BFR	SS	1GB
2	A-DATA	AD3U1333B2G9-B	Hynix	H5TQ1G83BFR	DS	2GB
3	Apacer	78.A1GC6.9L1	Apacer	AM5D5808ADWSBG	DS	2GB
4	Elixir	M2F2G64CB8HA4N-CG	Elixir	N2CB1G80AN-CG 0903	DS	2GB
5	Elixir	M2Y2G64CB8HC9N-CG			DS	2GB
6	Hynix	HMT112U6AFP8C-H9N0 AA	Hynix	H5TQ1G83AFP H9C	SS	1GB
7	Hynix	HMT125U6AFP8C-H9N0 AA	Hynix	H5TQ1G83AFP H9C	DS	2GB
8	G.SKILL	F3-10666CL9D-4GBRL			DS	2GB
9	G.SKILL	F3-10666CL8D-4GBECO			DS	2GB
10	G.SKILL	F3-10666CL9D-4GBNQ			DS	2GB
11	Kingston	KVR1333D3N9	Elpida	J1108BASE-DJ-E	SS	1GB
12	Kingston	KVR1333D3N9	Elpida	J1108BABG-DJ-E	DS	2GB
13	Kingston	KVR1333D3N9	Hynix	Hynix/H5TQ2G83AFR	DS	4GB
14	KingMax	FLFD45F-B8KG9 NAES	KingMax	KFB8FNGXF-ANX-15A	SS	1GB
15	KingMax	FLFE85F-B8KG9 NEES	KingMax	KFB8FNGXF-ANX-15A	DS	2GB
16	Nanya	NT2GC64B8HAONF-CG	Elixir	N2CB1G80AN-CG	DS	2GB
17	Micron	MT8JTF12864AY-1G4D1	Micron	8UD22 D9JNM	SS	1GB
18	Micron	MT16JTF25664AY-1G4D1	Micron	8WD22 D9JNM	DS	2GB
19	Micron	MT8JTF12864AZ-1G4F1	Micron	9MF22 D9KPT	SS	1GB
20	PSC	AL7F8G73D-DG1	PSC	A3P1GF3DGF	SS	1GB
21	PSC	AL8F8G73D-DG1	PSC	A3P1GF3DGF	DS	2GB
22	Ramaxel	RMR1810KD48E7F-1333	SEC	K4B1G0846D	SS	1GB
23	Ramaxel	RMR186EA48D8F-1333	ELPLDA	J1108BASE-DJ-E	DS	2GB
24	Samsung	M378B2873DZ1-CH9	SEC	K4B1G0846D	SS	1GB
25	Samsung	M378B2873EH1-CH9	SEC	K4B1G0846E HCH9	SS	1GB
26	Samsung	M378B5673EH1-CH9	SEC	K4B1G0846E HCH9	DS	2GB
27	Samsung	M378B2873FHS-CH9	SEC	K4B1G0846F	SS	1GB
28	Samsung	M378B5673FH0-CH9	SEC	K4B1G0846F	DS	2GB
29	Samsung	M378B5273CH0-CH9	SEC	K4B2G0846C	DS	4GB
30	Silicon Power	SP001GBLTU133S01	Nanya	NT5CB128M8AN-CG	SS	1GB
31	Silicon Power	SP002GBLTU133S01	Nanya	NT5CB128M8AN-CG	DS	2GB
32	Aeneon	AXH760UD00-13GA98X			SS	1GB
33	Corsair	CM3X1024-1333C9DHX			SS	1GB
34	KingsMax	FLFD45F-B8KG9 NAUS	KingsMax	KFB8FNGXF-ANX-15U	SS	1GB
35	KingsMax	FLFE85F-B8KG9 NEUS	KingsMax	KFB8FNGXF-ANX-15U	DS	2GB
36	Kingston	KVR1333D3N9	Micron	8CD22 D9JNM	SS	1GB
37	Kingston	KVR1333D3N9	Kingston	128X8DDR3 SL0931	DS	2GB
38	Kingston	KVR1333D3N9K2/2G	Elpida	J1108BASE-DJ-E	DS	2GB
39	Kingston	KVR1333D3N9/2G	Qimonda	IDSH1G-03A1F1C-13H	DS	2GB
40	Elixir	M2Y1G64CB88A5N-CG	Elixir	N2CB1G80AN-CG	SS	1GB
41	Elixir	M2Y2G64CB8HA5N-CG	Elixir	N2CB1G80AN-CG	DS	2GB
42	Nanya	NT1GC64B88A0NF-CG	Nanya	NT5CB128M8AN-CG	SS	1GB
43	Qimonda	IMSH1GU13A1F1C-13H	Qimonda	0734 IDSH51-03A1F1D	SS	1GB
44	Qimonda	IMSH2GU13A1F1C-13H	Qimonda	IDSH1G-03A1F1C-13H FSS08244	DS	2GB
45	Unifosa	GU502203EP0201	Elpida	J1108BDBG-DJ-F	SS	1GB
46	Unifosa	GU512303EP0202	Elpida	J1108BDBG-DJ-F	DS	2GB
47	Ramaxel	RMR1810E7F-1333	Elpida	J1108BDBG-DJ-F	SS	1GB
48	Elpida	EBJ10UE8BDF0-DJ-F	Elpida	J1108BDSE-DJ-F	SS	1GB
49	Elpida	EBJ21UE8BDF0-DJ-F	Elpida	J1108BDSE-DJ-F	DS	2GB
50	A-data	Game A-DATA 8-8-8-24			DS	2GB
51	Winchip	GDF2GB18L150C8	Winchip	AFE128AYE-15	DS	2GB

DDR3 1600						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	A-DATA	Super speed dragon			DS	2GB
2	A-DATA	AX3U1600GB2G9-AG			DS	2GB
3	Elixir	M2Y2G64CB8HA9N-DG			DS	2GB
4	G.SKILL	F3-12800CL9D-4GBNQ			DS	2GB
5	G.SKILL	F3-12800CL9D-4GECO			DS	2GB
6	G.SKILL	F3-12800CL7D-4GBECO			DS	2GB
7	G.SKILL	F3-12800CL9D-4GBRL			DS	2GB
8	KingsMax	FLGD45F-B8KG9 NEES	KingsMax	KFB8FNGXF-ANX-12A	SS	1GB
9	KingsMax	FLGE85F-B8KG9 NEES	KingsMax	KFB8FNGXF-ANX-12A	DS	2GB
DDR3 1800						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	Kingston	KHX1800C9D3K3/3GX			SS	1GB
DDR3 2000						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	Apacer	78.AAGD5.9KD			DS	2GB
DDR3 2133						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	Kingston	KHX2133C9D3T 1K2/4GX			DS	2GB
DDR3 2200						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	KingsMax	FLKE85F-B8KJA FEIH			DS	2GB
2	G.SKILL	F3-17600CL7D-4GBPIS			DS	2GB

Expansion Slots

Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.



PCIE1~2 Slots The PCI Express x1 slots are fully compliant to the PCI Express Generation 2.0 (version 2.0).

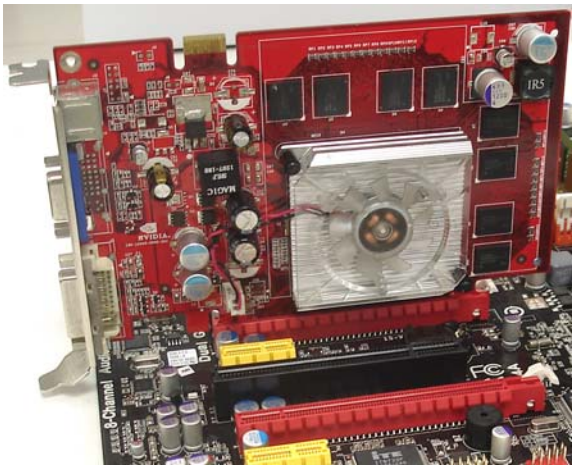
PCIEX16 Slot The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Generation 2.0 (version 2.0).

PCI1~3 Slots This motherboard is equipped with three standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.

Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

Follow these instructions to install an add-on card:

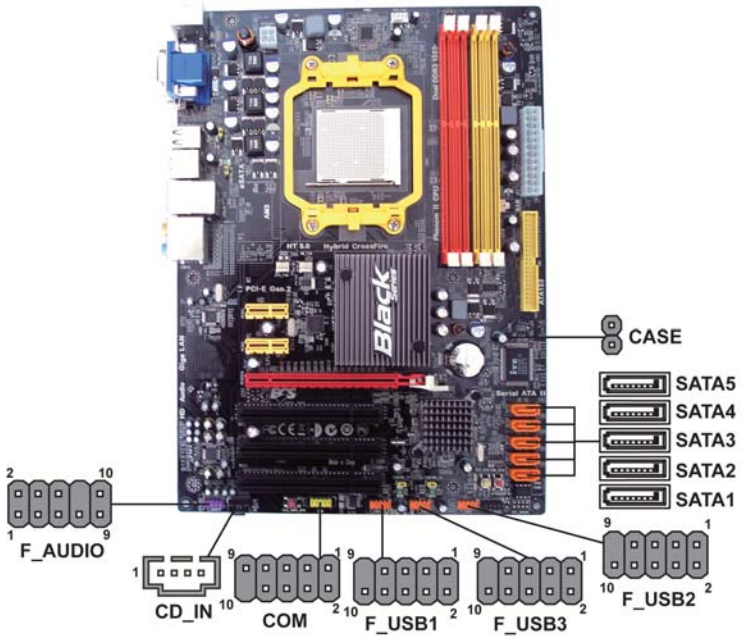
1. Remove a blanking plate from the system case corresponding to the slot you are going to use.
2. Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3. Secure the metal bracket of the card to the system case with a screw.



For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:



COM: Onboard serial port header

Connect a serial port extension bracket to this header to add a serial port to your system.

Pin	Signal Name	Function
1	DCDB	Data Carrier Detect
2	SINB	Serial Input
3	SOUTB	UART B Serial Output
4	DTRB	UART B Data Terminal Ready
5	GND	Ground
6	DSRB	Data Set Ready
7	RTSB	RART B Request to Send
8	CTSB	Clear to Send
9	RI	Ring Indicator
10	Key	No pin

SATA1~5: Serial ATA connectors

These connectors are used to support the new Serial ATA devices for the highest data transfer rates (3.0 Gb/s), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

Pin	Signal Name	Pin	Signal Name
1	Ground	2	TX+
3	TX-	4	Ground
5	RX-	6	RX+
7	Ground	-	-

F_AUDIO: Front Panel Audio header

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Pin	Signal Name	Pin	Signal Name
1	PORT 1L	2	AUD_GND
3	PORT 1R	4	PRESENCE#
5	PORT 2R	6	SENSE1_RETURN
7	SENSE_SEND	8	KEY
9	PORT 2L	10	SENSE2_RETURN

CD_IN: Analog audio input connector

Pin	Signal Name	Function
1	CD_L	Left CD-in signal
2	GND	Ground
3	GND	Ground
4	CD_R	Right CD-in signal

CASE: Chassis Intrusion Detect Header

This detects if the chassis cover has been removed. This function needs a chassis equipped with instrusion detection switch and needs to be enabled in BIOS.

Pin 1-2	Function
Short	Chassis cover is removed
Open	Chassis cover is closed

F_USB1~3: Front Panel USB headers

The motherboard has six USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector to connect the front-mounted ports to the motherboard.

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	USBPWR	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	USB_FP_OC0	Overcurrent signal

Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

Installing a Hard Disk Drive/CD-ROM/SATA Hard Drive

This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

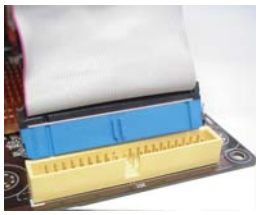
About IDE Devices

Your motherboard has one IDE interface. An IDE ribbon cable supporting two IDE devices is bundled with the motherboard.

You must orient the cable connector so that the pin1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.

IDE: IDE Connector

This motherboard supports five high data transfer SATA ports with each runs up to 3.0 Gb/s. To get better system performance, we recommend users connect the CD-ROM to the IDE channel, and set up the hard drives on the SATA ports.



IDE devices enclose jumpers or switches used to set the IDE device as MASTER or SLAVE. Refer to the IDE device user's manual. Installing two IDE devices on one cable, ensure that one device is set to MASTER and the other device is set to SLAVE. The documentation of your IDE device explains how to do this.

About SATA Connectors

Your motherboard features five SATA connectors supporting a total of five drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with an SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.

SATA cable (optional)

SATA power cable (optional)

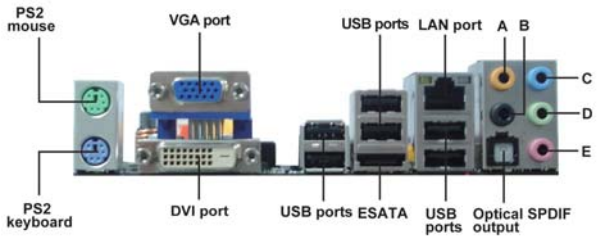
Refer to the illustration below for proper installation:

1 Attach either cable end to the connector on the motherboard.
2 Attach the other cable end to the SATA hard drive.
3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.

This motherboard supports the "Hot-Plug" function.

Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:



PS2 Mouse Use the upper PS/2 port to connect a PS/2 pointing device.

PS2 Keyboard Use the lower PS/2 port to connect a PS/2 keyboard.

VGA Port Connect your monitor to the VGA port.

DVI Port Connect the DVI port to connect the monitor.

USB Ports Use the USB ports to connect USB devices.

ESATA Port Use this port to connect to an external SATA box or a Serial ATA port multiplier.

LAN Port Connect an RJ-45 jack to the LAN port to connect your computer to the network.

Optical SPDIF Output This jack connects to external optical digital audio output devices.

Audio Ports Use the audio jacks to connect audio devices. The C port is for stereo line-in signal, while the E port is for microphone in signal. This motherboard supports audio devices that correspond to the A, B and D port respectively. In addition, all of the 3 ports, B, and D provide users with both right & left channels individually. Users please refer to the following note for specific port function definition.

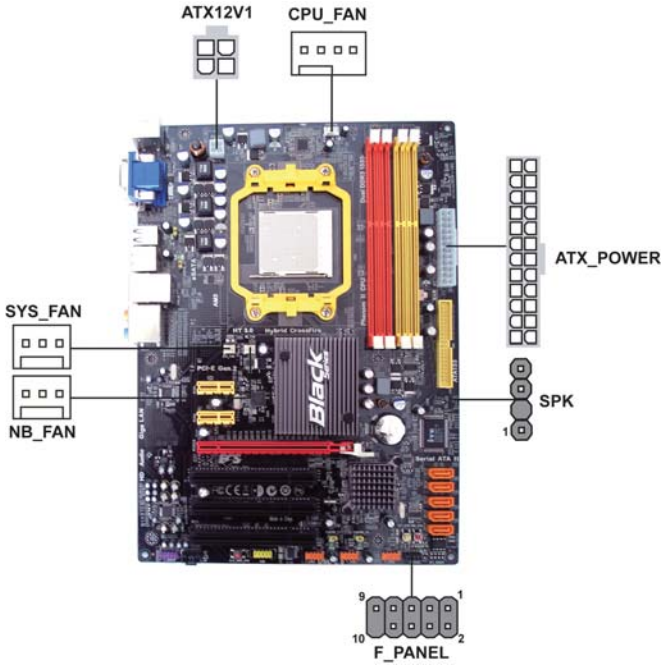
A: Center & Woofer	D: Front Out
B: Back Surround	E: Mic_in Rear
C: Line-in	-

The above port definition can be changed to audio input or audio output by changing the driver utility setting.

Connecting Case Components

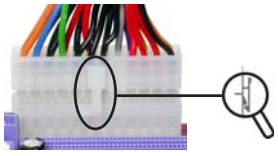
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

1 Connect the CPU cooling fan cable to **CPU_FAN**.
2 Connect the standard power supply connector to **ATX_POWER**.
3 Connect the case speaker cable to **SPK**.
4 Connect the case switches and indicator LEDs to the **F_PANEL**.
5 Connect the system cooling fan connector to **SYS_FAN**.
6 Connect the auxiliary case power supply connector to **ATX12V1**.
7 Connect the northbridge cooling fan connector to **NB_FAN**.



Connecting 24-pin power cable

Users please note that the 24-pin power cable can be connected to the ATX_POWER connector.

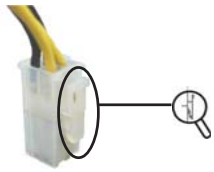


24-pin power cable

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX_POWER match perfectly.

Connecting 4-pin power cable

The ATX12V power connector is used to provide power to the CPU.



4-pin power cable

When installing 4-pin power cable, the latches of power cable and the ATX12V match perfectly.

CPU_FAN: Cooling FAN Power Connector

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor
4	PWM	CPU FAN control

Users please note that the fan connector supports the CPU cooling fan of 1.1A~2.2A (26.4W max.) at +12V.

ATX_POWER: ATX 24-pin Power Connector

Pin	Signal Name	Pin	Signal Name
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	Ground	15	COM
4	+5V	16	PS_ON
5	Ground	17	COM
6	+5V	18	COM
7	Ground	19	COM
8	PWRGD	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	COM

SYS_FAN/NB_FAN: FAN Power Connector

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor

SPK: Internal speaker

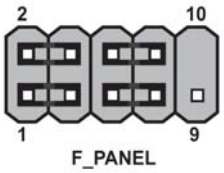
Pin	Signal Name
1	VCC
2	Key
3	NC
4	Signal

ATX12V1: ATX 12V Power Connector

Pin	Signal Name
1	Ground
2	Ground
3	+12V
4	+12V

Front Panel Header

The front panel header (F_PANEL) provides a standard set of switch and LED headers commonly found on ATX or Micro ATX cases. Refer to the table below for information:



F_PANEL

Pin	Signal	Function	Pin	Signal	Function
1	HD_LED_P	Hard disk LED (+)	2	FP PWR/SLP	*MSG LED (+)
3	HD_LED_N	Hard disk LED (-)	4	FP PWR/SLP	*MSG LED (-)
5	RST_SW_N	Reset Switch (-)	6	PWR_SW_P	Power Switch (+)
7	RST_SW_P	Reset Switch (+)	8	PWR_SW_N	Power Switch (-)
9	RSVD	Reserved	10	Key	No pin

** MSG LED (dual color or single color)*

Hard Drive Activity LED

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

Power/Sleep/Message waiting LED

Connecting pins 2 and 4 to a single or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

Reset Switch

Supporting the reset function requires connecting pin 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

Power Switch

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal de-bounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

This concludes Chapter 2. The next chapter covers the BIOS.

Chapter 3
Using BIOS

About the Setup Utility

The computer uses the latest "American Megatrends Inc. " BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

The Standard Configuration

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

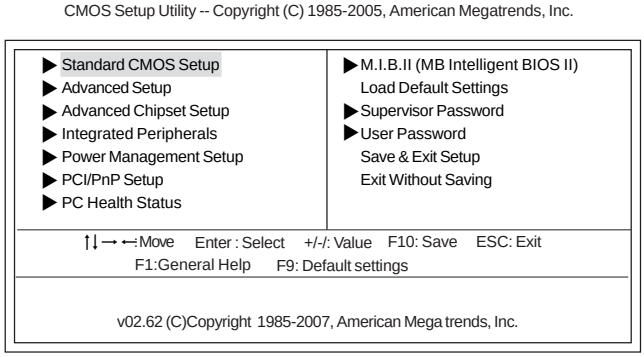
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Press DEL to enter SETUP

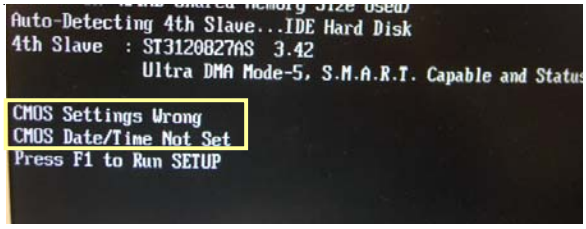
Press the delete key to access the BIOS Setup Utility.

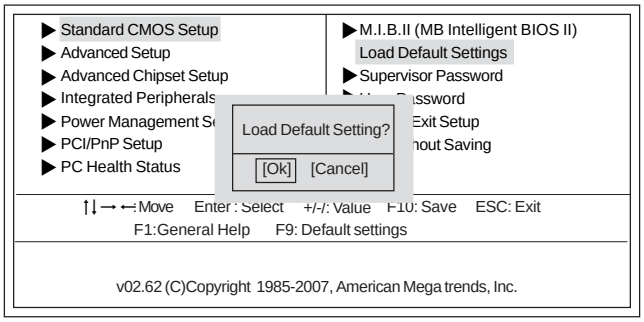


Resetting the Default CMOS Values

When powering on for the first time, the POST screen may show a "CMOS Settings Wrong" message. This standard message will appear following a clear CMOS data at factory by the manufacturer. You simply need to Load Default Settings to reset the default CMOS values.

Note: Changes to system hardware such as different CPU, memories, etc. may also trigger this message.





Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ▶) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ▶.

The default BIOS setting for this motherboard applies for most conditions with optimum performance. It is not suggested to change the default values in the BIOS setup and the manufacture takes no responsibility to any damage caused by changing the BIOS settings.

BIOS Navigation Keys

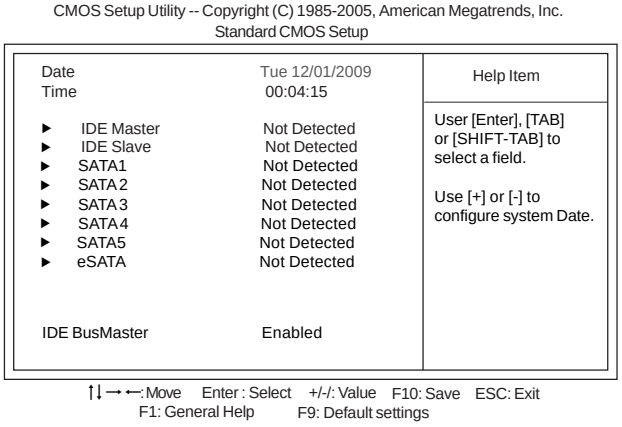
The BIOS navigation keys are listed below:

KEY	FUNCTION
ESC	Exits the current menu
↑↓<->	Scrolls through the items on a menu
+/-/	Modifies the selected field's values
Enter	Select
F9	Load a default optimized setting
F10	Saves the current configuration and exits setup
F1	Displays a screen that describes all key functions

For the purpose of better product maintenance, the manufacture reserves the right to change the BIOS items presented in this manual. The BIOS setup screens shown in this chapter are for reference only and may differ from the actual BIOS. Please visit the manufacture's website for updated manual.

Standard CMOS Setup

This option displays basic information about your system.

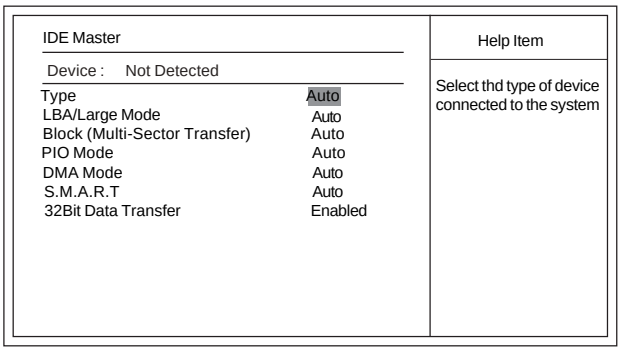


Date & Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

► IDE Master/Slave, SATA1~5, eSATA

Your computer has one IDE channel which can be installed with one or two devices (Master and Slave). In addition, this motherboard supports five SATA channels and each channel allows one SATA device to be installed. Use these items to configure each device on the SATA channel.



Type (Auto)

Use this item to configure the type of the IDE device that you specify. if the feature is unabled, it will enhance hard disk performance by reading or writing more data during each transfer.

LBA/Large Mode (Auto)

Use this item to set the LAB/Large mode to enhance hard disk performance by optimizing the area the hard disk is visited each time.

Block (Multi-Sector Transfer) (Auto)

If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

PIO Mode (Auto)

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

DMA Mode (Auto)

DMA capability allows user to improve the transfer-speed and data-integrity for compatible IDE devices.

S.M.A.R.T. (Auto)

The S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer.

32Bit Data Transfer (Enabled)

Use this item to set the onboard SATA-IDE channel to be disabled, IDE, or RAID.

Press <Esc> to return to the Standard CMOS Setup page.

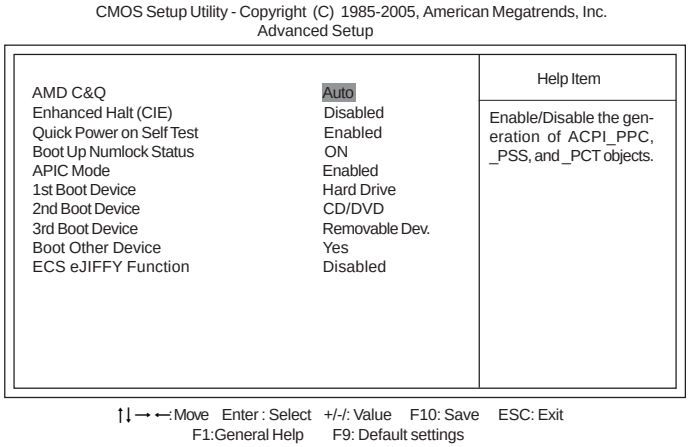
IDE BusMaster (Enabled)

This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

Press <Esc> to return to the main menu setting page.

Advanced Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.



AMD C&Q (Enabled)

This item helps the system to lower the frequency when CPU idles. When the frequency decreases, the temperature will drop automatically as well.

Enhanced Halt (C1E) (Disabled)

This item enables or disables enhanced halt.

Quick Power on Self Test (Enabled)

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system

Boot Up Numlock Status (On)

This item defines if the keyboard Num Lock key is active when your system is

APIC Mode (Enabled)

This item allows you to enable or disable the APCI (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP) for sys-

1st/2nd3rd Boot Device (Hard Drive/CD/DVD/Removable Dev.)

Use this item to determine the device order the computer used to look for an operating system to load at start-up time. The devices showed here will be different

Boot Other Device (Yes)

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the First, Second and Third boot devices.

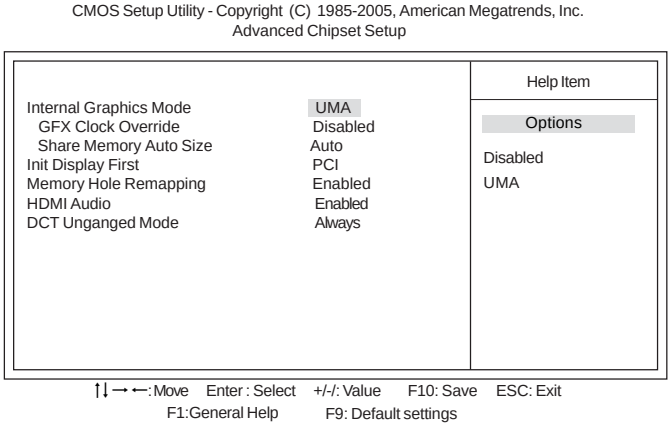
ECS eJIFFY Function (Disabled)

Use this item to enable or disable the ECS eJIFFY Function. eJIFFY is ECS unique software program for the quick access to the internet without entering O.S. Please refer to Chapter7 to know more about eJIFFY.

Press <Esc> to return to the main menu setting page.

Advanced Chipset Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.



Internal Graphics Mode (UMA)

Use this item to choose the onboard VGA mode. You can select [Disabled] to disablethe onboard VGA, [UMA] to use the system memory.

Warning: If Disabled Internal Graphics Mode, please Loading default toEnable it.

GFX Clock Override (Disabled)

Use this item to enable or disable GFX Clock Override.

Share Memory Size (Auto)

This item lets you allocate a portion of the main memory for the onboard VGA display application.

Init Display First (PCI)

Use this item to select which graphics controller to use as the primary boot devices.

Memory Hole Remapping (Enabled)

This item allows users to enable or disable memroy hole remapping.

HDMI Audio (Enabled)

This item is used to enable or disable the onboard audio chip.

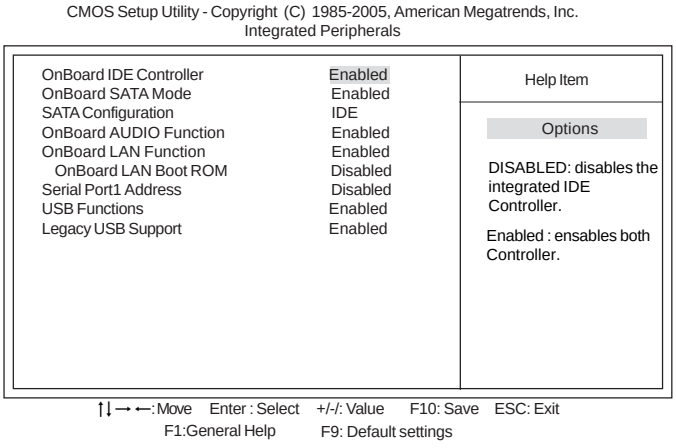
DCT Unganged Mode (Always)

This item is used to select the DCT mode (DRAM Controller mode).

Press <Esc> to return to the main menu setting page.

Integrated Peripherals

This page sets up some parameters for peripheral devices connected to the system.



OnBoard IDE Controller (Enabled)

Use this item to enable or disable the onboard IDE interface.

OnBoard SATA Mode (Enabled)

Use this item to enable or disable the onboard SATA mode.

SATA Configuration (IDE)

Use this item to show the Serial ATA Configuration options: Disabled, Compatible, Enhanced.

OnBoard AUDIO Function (Enabled)

Use this item to enable or disable the onboard Audio function.

OnBoard LAN Function (Enabled)

Use this item to enable or disable the onboard LAN function.

OnBoard LAN Boot ROM (Disabled)

Use this item to enable or disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

Serial Port1 Address (Disabled)

Use this item to enable or disable the onboard COM1 serial port, and to assign a port address.

USB Functions (Enabled)

Use this item to enable or disable the USB function.

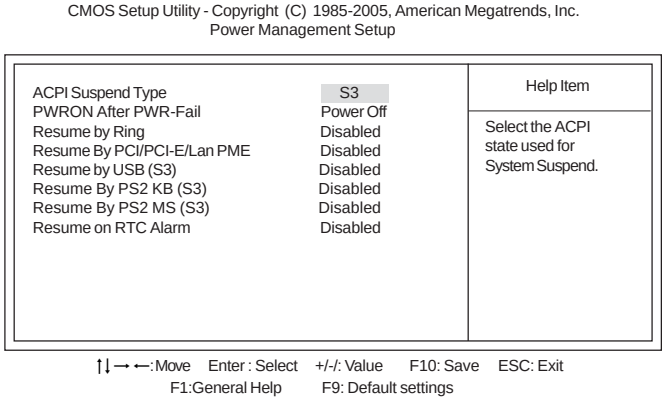
Legacy USB Support (Enabled)

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of USB device at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

Press <Esc> to return to the main menu setting page.

Power Management Setup

This page sets up some parameters for system power management operation.



ACPI Suspend Type (S3)

Use this item to define how your system suspends. In the default, S3, the suspend mode is a suspend to RAM, i.e, the system shuts down with the exception of a refresh current to the system memory.

PWRON After PWR-Fail (Power Off)

This item enables your computer to automatically restart or return to its operating status.

Resume By Ring (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

Resume By PCI/PCI-E/Lan PME (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI Modem or PCI LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI card.

Resume By USB (S3) (Disabled)

This item allows you to enable/disable the USB device wakeup function from S3 mode.

Resume By PS2 KB (S3) (Disabled)

This item enables or disables you to allow keyboard activity to awaken the system from power saving mode.

Resume By PS2 MS (S3) (Disabled)

This item enables or disables you to allow mouse activity to awaken the system from power saving mode.

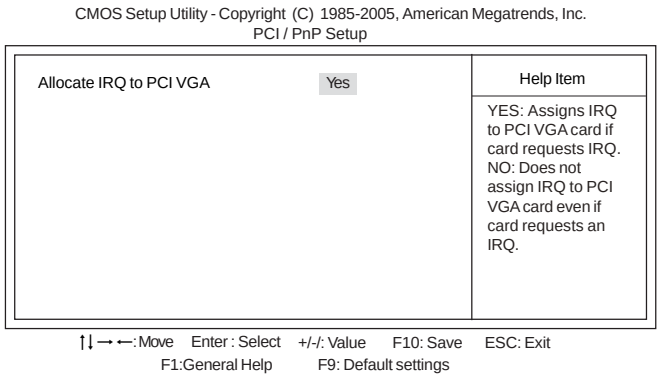
Resume on RTC Alarm (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

Press <Esc> to return to the main menu setting page.

PCI / PnP Setup

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.



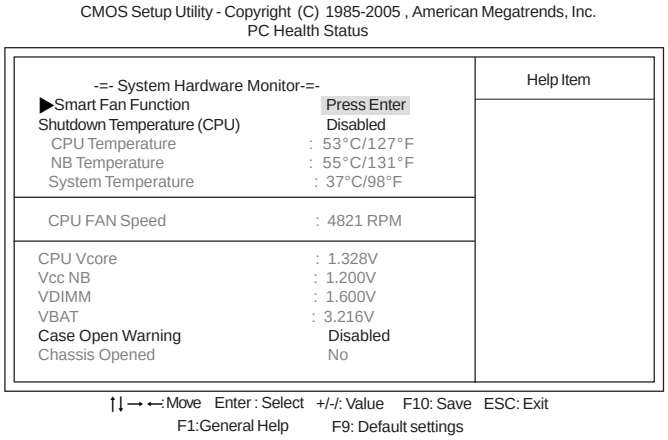
Allocate IRQ to PCI VGA (Yes)

Use this item to select which graphics controller to use as the primary boot devices.

Press <Esc> to return to the main menu setting page.

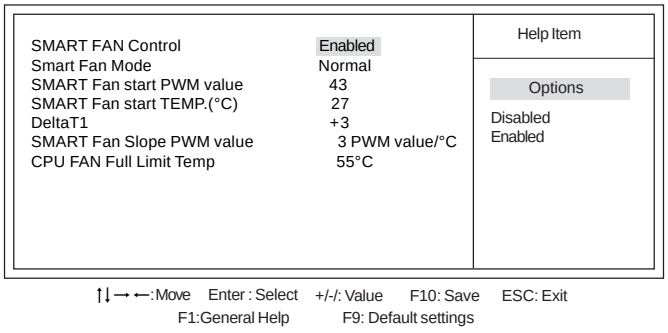
PC Health Status

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.



▶ Smart Fan Function

Scroll to this item and press <Enter> to view the following screen:



SMART FAN Control (Enabled)

This item allows you to enable/disable the control of the system fan speed by changing the fan voltage.

Smart Fan Mode (Normal)

This item allows you to select the fan mode (Normal, Quiet, Silent, or Manual) for a better operation environment. If you choose Normal mode, the fan speed will be auto adjusted depending on the CPU temperature. If you choose Quite mode, the fan speed will be auto minimized for quiet environment. If you choose Silent mode, the fan speed will be auto restricted to make system more quietly. If you choose Manual mode, the fan speed will be adjust depending on users' parameters.

SMART Fan start PWM value (43)

This item is used to set the start PWM value of the smart fan.

SMART Fan start TEMP. (°C) (27)

This item is used to set the start temperature of the smart fan.

DeltaT1 (+3)

This item specifies the range that controls CPU temperature and keeps it from going so high or so low when smart fan works.

SMART Fan Slope PWM value (3 PWM value/°C)

This item is used to set the Slope Select PWM of the smart fan.

CPU FAN Full Limit Temp. (55°C)

This item is used to set the limit temperature of the smart fan.

Press <Esc> to return to the main menu setting page.

Shutdown Temperature (CPU) (Disabled)

Enable you to set the maximum temperature the CPU can reach before powering down

System Component Characteristics

These items display the monitoring of the overall inboard hardware health events, such as CPU & System & NB temperature, CPU fan speed, CPU Vcore, ...etc.

- CPU Temperature
- NB Temperature
- System Temperature
- CPU FAN Speed
- CPU Vcore
- Vcc NB
- VDIMM
- VBAT

Case Open Warning (Disabled)

This item enables or disables the warning if the case is opened up, and the itembelow indicates the current status of the case.

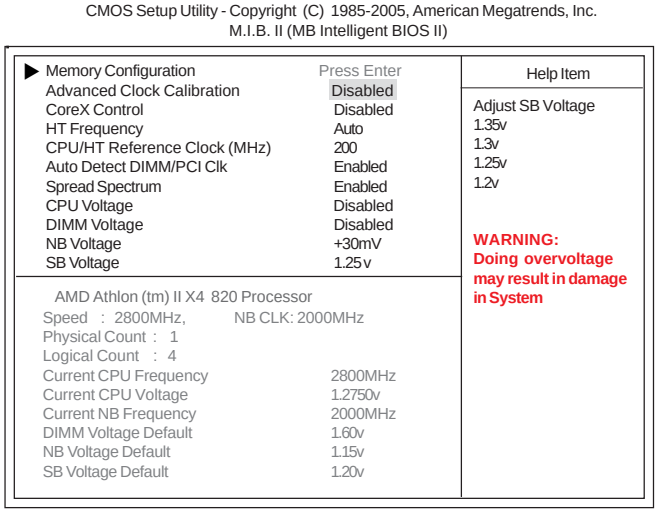
Chassis Opened (No)

This item indicates whether the case has been opened

Press <Esc> to return to the main menu setting page.

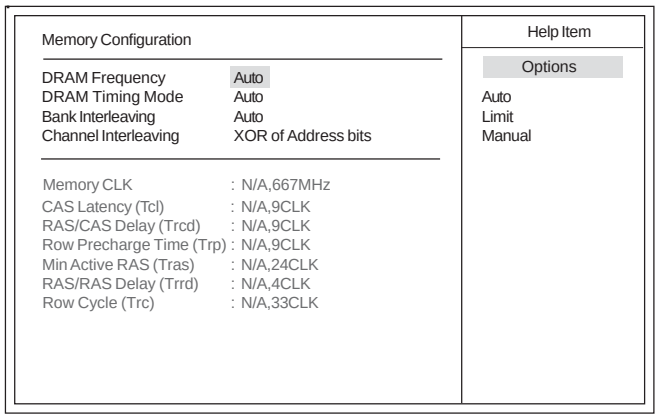
M.I.B. II (MB Intelligent BIOS II)

This page enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.



► Memory Configuration

Scroll to this item and press <Enter> to view the following screen:



DRAM Frequency (Auto)

This item enables users to adjust the DRAM frequency. The default setting is auto and we recommend users leave the setting unchanged. Modify it at will may cause the system to be unstable.

DRAM Timing Mode (Auto)

This item enables you to specify the DRAM timing mode to be configured automatically or manually.

Bank Interleaving (Auto)

This item is used to set the bank interleaving.

Channel Interleaving (XOR of Address bits)

This item is used to set the channel interleaving.

Memory CLK (533 MHz, N/A)

This item is used to set the memory clock mode.

CAS Latency (Tcl) (8 CLK, N/A)

This item controls the timing delay (inclockcycles) before the DRAM starts a read command after receiving it.

RAS/CAS Delay (Trcd) (8 CLK, N/A)

This is the amount of time a CAS is performed after a RAS. The lower the better, but some DRAM does not support low figures.

Row Precharge Time (Trp) (8 CLK, N/A)

This item specifies the Row precharge to Active or Auto-Refresh of the same bank.

Min Active RAS (Tras) (20 CLK, N/A)

This item determins the time RAS takes to read from and write to a memory cell.

RAS/RAS Delay (Trrd) (4 CLK, N/A)

This item specifies the active-to-active delay of different banks.

Row Cycle (Trc) (27 CLK, N/A)

Use this item to specify the Row Cycle Time.

Press <Esc> to return to the M.I.B.II page.

Advanced Clock Calibration (Disabled)

This item can enable greater performance tuning margin for the AMD Phenom™ Black Edition CPUs. The optimal gain can be seen in configurations that use high-end CPU cooling solution in combination with elevated CPU core voltage (CPU VID) value. The motherboards that support “advanced Clock Calibration”-feature should enable power delivery capabilities, specifications in order to maximize the performance tuning potential.

CoreX Control (Disabled)

This item allows you to enable or disable coreX control.

HT Frequency (Auto)

This item enables users to adjust the HT frequency. The default setting is auto and we recommend users leave the setting unchanged. Modify it at will may cause the system to be unstable.

CPU/HT Reference Clock (MHz) (200)
Use this item to set the CPU/HT Reference Clock through clock gen.

Auto Detect DIMM/PCI Clk (Enabled)
When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.

Spread Spectrum (Enabled)
If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

CPU Voltage (Disabled)
This item allows users to adjust the CPU voltage.

DIMM Voltage (Disabled)
This item allows users to adjust the DIMM voltage.

Incorrectly doing overclock/overvoltage may result in damage to CPU, chipset, or memory and reduce the useful life of these components. This function is for advanced users only and we recommend you not to alter the default settings to prevent system instability or other unexpected results. (Enable for AM2+ / Disable for AM2)

NB Voltage (+50mV)
This item allows users to adjust the Northbridge voltage.

SB Voltage (1.20V)
This item allows users to adjust the Southbridge voltage.

AMD Athlon (tm) II x4 820 Processor
This is display-only field and displays the information of the CPU installed in your computer.

NB CLK (2000 MHz)
This item shows the frequency of Northbridge clock.

Physical/Logical Count (1/4)
This item shows the physical/logical count.

Current CPU Frequency (2800 MHz)
This item indicates the current CPU frequency. Users can not make any change to this item. Please noted that the frequency will be varied with different CPU.

Current CPU Voltage (1.2750v)
This item indicates the current CPU voltage.

Current NB Frequency (2000 MHz)
This item indicates the current NB frequency.

DIMM Voltage Default (1.60v)
This item indicates the current NB frequency.

NB Voltage Default (1.15v)
This item indicates the NB voltage default value.

SB Voltage Default (1.20v)
This item indicates the SB voltage default value.

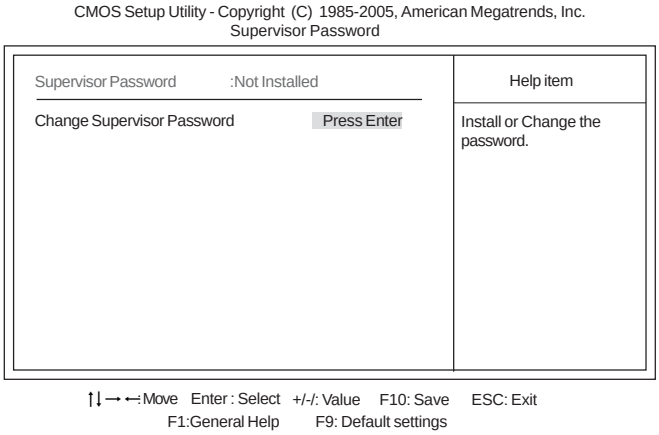
Press <Esc> to return to the main menu setting page.

Load Default Settings

This option opens a dialog box to ask if you are sure to install optimized defaults or not. You select [OK], and then press <Enter>, the Setup Utility loads all default values; or select [Cancel], and then press <Enter>, the Setup Utility does not load default values.

Supervisor Password

This page helps you install or change a password.



Supervisor Password (Not Installed)

This item indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

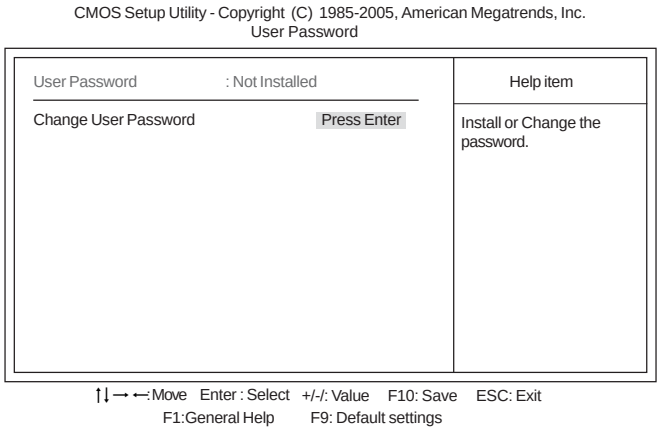
Change Supervisor Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Press <Esc> to return to the main menu setting page.

User Password

This page helps you install or change a password.



User Password (Not Installed)

This item indicates whether a user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

Change User Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the user password. This item will show if the supervisor password is set.

Press <Esc> to return to the main menu setting page.

Save & Exit Setup

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, select [OK] to save and exit, or select [Cancel] to return to the main menu.

Exit Without Saving

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, select [OK] to discard changes and exit, or select [Cancel] to return to the main menu.

If you have made settings that you do not want to save, use the "Exit Without Saving" item and select [OK] to discard any changes you have made.

Updating the BIOS

You can download and install updated BIOS for this motherboard from the manufacturer's Web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

1. If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
2. If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
3. Prepare a bootable device or create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
4. Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the bootable device.
5. Turn off your computer and insert the bootable device in your computer. (You might need to run the Setup Utility and change the the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the bootable device first.)
6. At the C:\ or A:\ prompt, type the Flash Utility program name and the file name of the new BIOS and then press <Enter>. Example: AMINF340.EXE040706.ROM
7. When the installation is complete, remove the bootable device from the computer and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

This concludes Chapter 3. Refer to the next chapter for information on the software supplied with the motherboard.

Chapter 4

Using the Motherboard Software

About the Software DVD-ROM/CD-ROM

The support software DVD-ROM/CD-ROM that is included in the motherboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your motherboard version. More information on some programs is available in a README file, located in the same directory as the software. Before installing any software, always inspect the folder for files named README.TXT or something similar. These files may contain important information that is not included in this manual.

1. Never try to install all software from folder that is not specified for use with your motherboard.

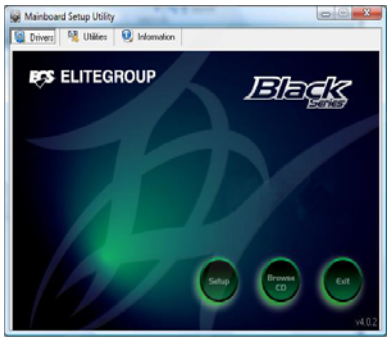
2. The notice of Intel HD Audio Installation (optional): The Intel High Definition audio functionality unexpectedly quits working in Windows Server 2003 Service Pack 1 or Windows XP Professional x64 Edition. Users need to download and install the update packages from the Microsoft Download Center ***"before"*** *installing HD audio driver bundled in the driver disk. Please log on to http://support.microsoft.com/default.aspx?scid=kb;en-us;901105#appliesto for more information.*

Auto-installing under Windows XP/Vista/7

The Auto-install DVD-ROM/CD-ROM makes it easy for you to install the drivers and software for your motherboard.

If the Auto-install DVD-ROM/CD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Refer to the Utility Folder Installation Notes later in this chapter.

The support software DVD-ROM/CD-ROM disk loads automatically under Windows XP/Vista/7. When you insert the DVD-ROM/CD-ROM disk in the DVD-ROM/CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.



If the opening screen does not appear; double-click the file "setup.exe" in the root directory.

Drivers Tab

Setup	Click the **Setup** button to run the software installation program. Select from the menu which software you want to install.
Browse CD	The **Browse CD** button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support disk. Before installing the software from Windows Explorer, look for a file named README.TXT or something similar. This file may contain important information to help you install the software correctly. Some software is installed in separate folders for different operating systems. In installing the software, execute a file named SETUP.EXE by double-clicking the file and then following the instructions on the screen.
Exit	The **EXIT** button closes the Auto Setup window.

Utilities Tab

Lists the software utilities that are available on the disk.

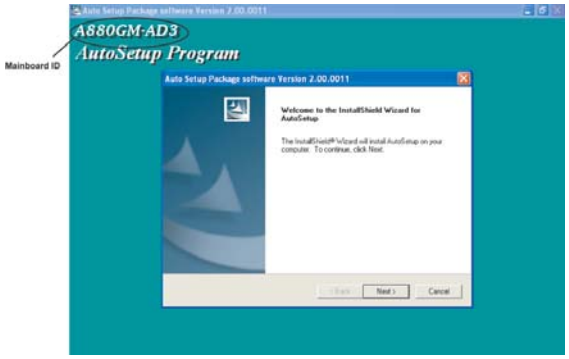
Information Tab

Displays the path for all software and drivers available on the disk.

Running Setup

Follow these instructions to install device drivers and software for the motherboard:

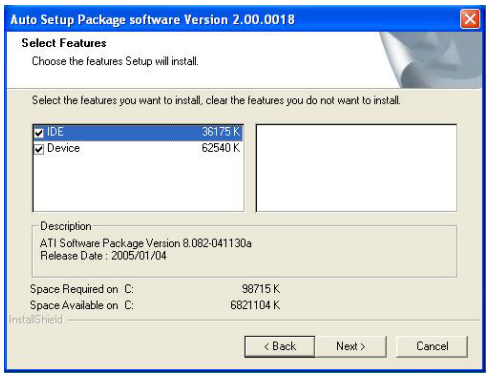
1. *Click **Setup**. The installation program begins:*



The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

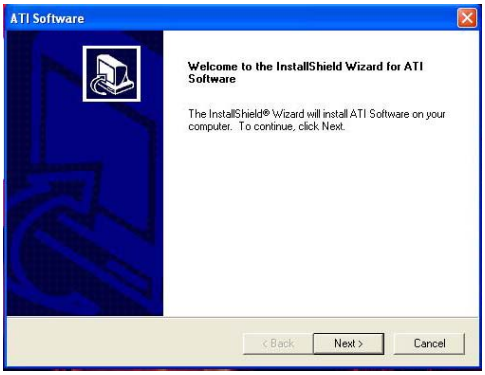
The motherboard identification is located in the upper left-hand corner.

2. *Click **Next.** The following screen appears:*



3. *Check the box next to the items you want to install. The default options are recommended.*

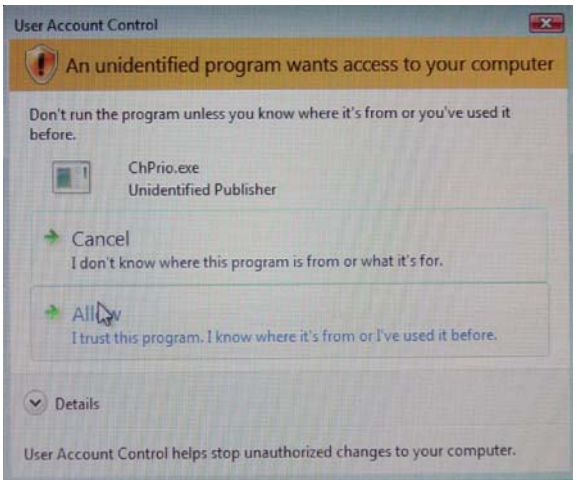
4. *Click **Next** run the Installation Wizard. An item installation screen appears:*



5. *Follow the instructions on the screen to install the items.*

Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

Windows Vista/7 will appear below UAC (User Account Control) message after the system restart. You must select "Allow" to install the next driver. Continue this process to complete the drivers installation.



Manual Installation

Insert the disk in the DVD-ROM/CD-ROM drive and locate the PATH.DOC file in the root directory. This file contains the information needed to locate the drivers for your motherboard.

Look for the chipset and motherboard model; then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.

1. *These software(s) are subject to change at anytime without prior no tice. Please refer to the support disk for available software.*
2. *Please go to ECS website to download AMD Cool "n" Quiet™ technology.*

This concludes chapter 4.

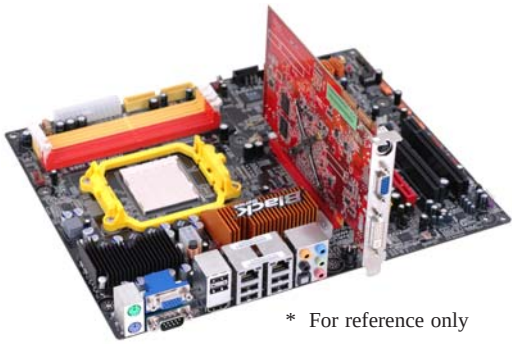
Chapter 5
Hybrid Graphics® Technology Support

Hybrid Graphics® Technology

The Hybrid Graphics® technology provides significant display performance boost to AMD-based systems by inserting the external PCI Express graphics card and enabling both the discrete GPU and the AMD785G graphics core to render simultaneously in Hybrid CrossFire™ mode.

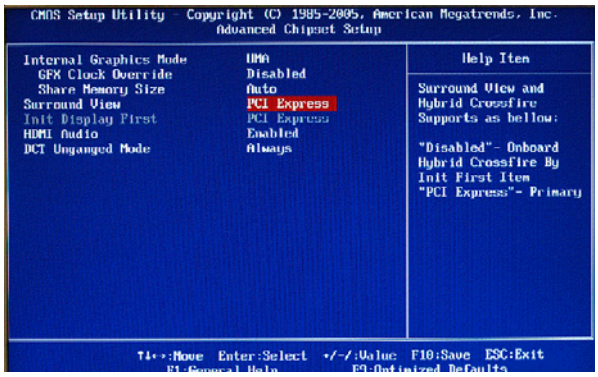
Follow the steps below to start the Hybrid Graphics® technology.

1.Insert a graphics card (which can be used for Hybrid Graphics® technology, such as HD3400 series) into the **PCIEX16** slot.
Make sure that the card is properly seated on the slot.



* For reference only

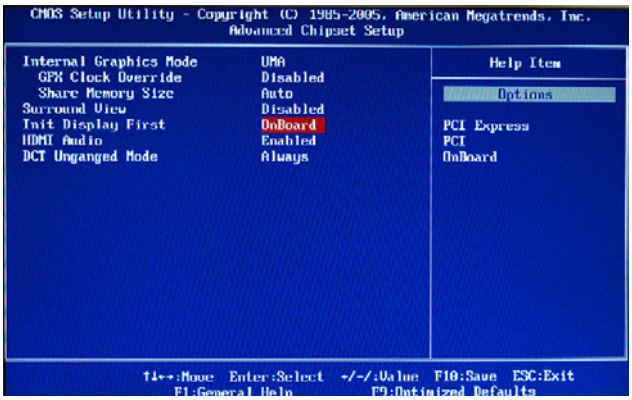
2. For Hybrid Graphics®, if display by PCI-Express, you must enter the BIOS, set the *Surround View* in *Advanced Chipset Setup* to **PCI Express**. Then press F10 to save the configuration and exit the BIOS. After entering OS, enter *Catalyst Control Center* to enable Hybrid CrossFire™.



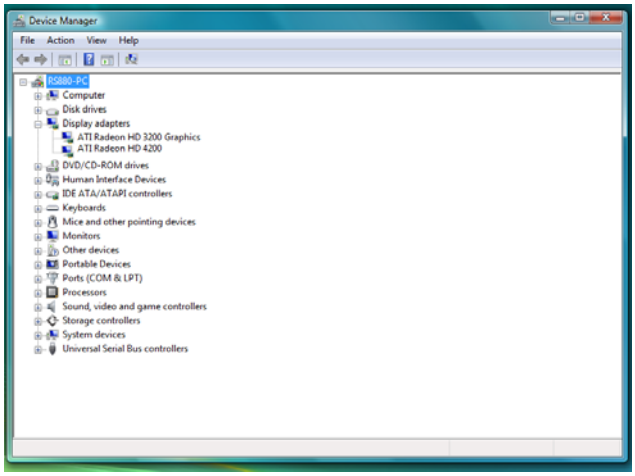
SurroundView™ provides the power and convenience of multiadapter, multimonitor support for computers that use a PCI-Express based graphics card in conjunction with ATI integrated graphic processors. And there are two options: Disabled and PCI Express.

If *SurroundView™* set to **Disabled**, and *Init Display First* set to **OnBoard**, SurroundView™ will be Enabled by Catalyst Control Center based on cancel the *Enable CrossFire™* option.

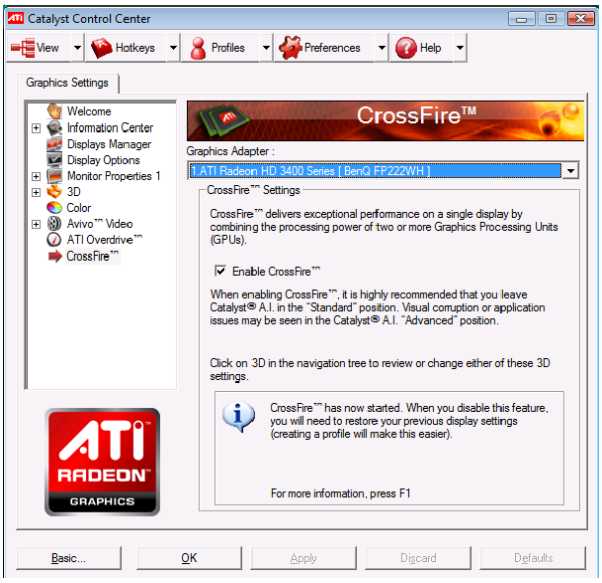
While if display by OnBoard, you must enter the BIOS, set the *Init Display First* in *Advanced Chipset Setup* to **OnBoard**. Then press F10 to save the configuration and exit the BIOS. After entering OS, enter *Catalyst Control Center* to enable CrossFire™.



3. Click with your right mouse button on *My Computer*, then click the option *Manage* and choose the *Device Manager*, finally, click the Display Adapters. The following screen appears. Be sure that the external ATI graphics (ATI Radeon HD 3400 Grapics) and Onboard graphics (Radeon HD 4200) are both displaying in the Display adapters.



4. Enter Catalyst Control Center, you can see the option of *CrossFire™*, click it and select *Enable CrossFire™*, then Hybrid Graphics® starts.



To disable Hybrid Graphics®, please make sure to cancel *Enable CrossFire™* in *Catalyst Control Center* firstly.

Memo

Chapter 6
Setting Up AMD SB710 RAID Configuration

Setting Up a bootable RAID Array

This section explains how to configure a bootable AMD RAID array.

Setting Up the BIOS

1 Start your computer, then press Delete to enter the BIOS setup.

The BIOS CMOS Setup Utility screen appears.

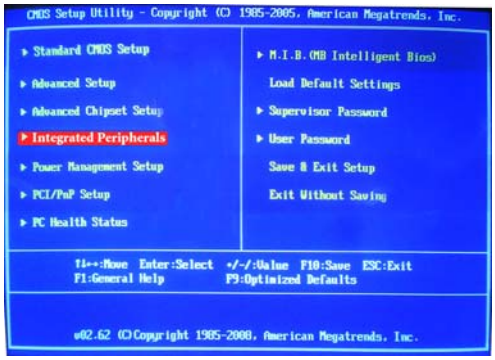


Figure 1.1 BIOS CMOS Setup Utility Main Screen

2 Use the arrow keys to select Integrated Peripherals (see Figure 1.1), then press Enter.

The Integrated Peripherals screen (or a screen similar to it) appears.

Figure 1.2 Integrated Peripherals Screen

3 Use the arrow keys to select the SATA Configuration (see Figure 1.2) and globally set SATA Configuration to RAID.

4 Press F10 to save the configuration and exit.
The PC reboots.

5 Enter the RAID BIOS Setup by pressing Ctrl-F when prompted, and proceed to set up the AMD RAID BIOS as described in the next section.

Configuring the AMD RAID BIOS

The AMD RAID BIOS set up lets you choose the RAID type and which hard drives you want to make part of the array.

Entering the RAID BIOS Setup:

1 Wait until you see the RAID software prompting you to press Ctrl-F.

The RAID prompt appears as part of the system POST and boot process prior to loading of the OS. You have a few seconds to press Ctrl-F before the screen disappears.

2 Press Ctrl-F.

The Main Menu screen appears (Figure 1.3).

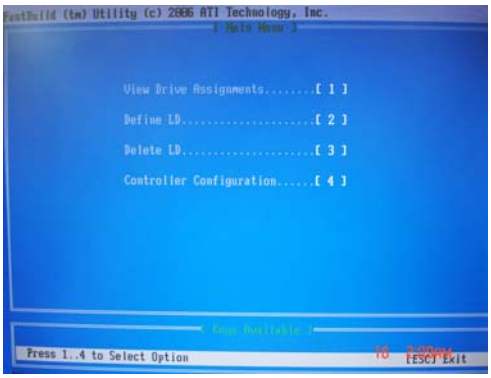


Figure 1.3 Main Menu

3 Select [2], then select LD 1 in the following page.

The Define LD Menu screen appears (Figure 1.4).

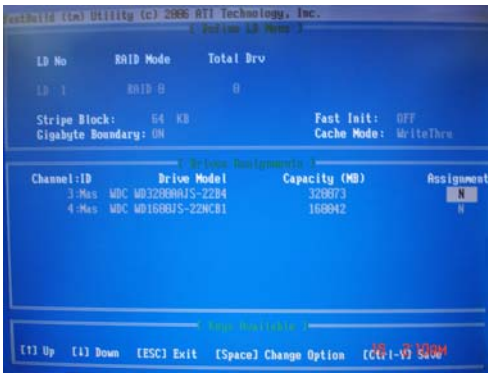


Figure 1.4 Define LD Menu

Using the Define a New Array Screen

If necessary, press the tab key to move from field to field until the appropriate field is highlighted.

- **Selecting the RAID Mode**

  By default, this is set to Mirroring. To change to a different RAID mode, press the spacebar until the mode that you want appears in the RAID Mode box—RAID0/1/10/JBOD.

  Note: Not all RAID levels are supported on all platforms.

- **Selecting the Stripe Block Size**

  Stripe block size is given in kilobytes, and affects how data is arranged on the disk. It is recommended to leave this value at the default Optimal, which is 64KB, but the values can be 64 KB and 128 KB. When choose RAID 1, the Stripe block size is unchangable.

Assigning the Disks

1. Select the Assignment to Y to designate a free disk to be used as a RAID array disk.

   Figure 1.5 illustrates the Define a New Array screen after two disks have been assigned as RAID 0 array disks.

Figure 1.5 FastBuild Utility—Array Disks Assigned

2. Press Ctrl-Y to save the configuration and exit.

   The Define LD Menu screen appears (Figure 1.6).

Figure 1.6 Define LD Menu

3. Press ESC to exit.

   The Main Menu screen appears (Figure 1.7).

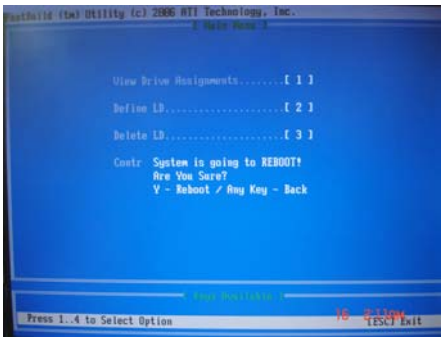


Figure 1.7 Main Menu

4 Press Y to reboot.

The following screen appears (Figure 1.8).

Figure 1.8

Installing the RAID Drivers

Your system may come with a Windows install CD that already includes AMD RAID drivers. If so, then this section is not relevant.

If that is not the case (or you are trying to install a new version of Windows), then you will need an AMD RAID driver F6 install floppy. Check to see if one came with your system. If not, you can create one by downloading the appropriate driver package and following the steps in this section.

1 Copy all files in "...\RAID\ATI\SB750\Floppy\Win3264" to a floppy disk.

2 After you complete the RAID BIOS setup, boot from the Windows CD.

The Windows Setup program starts.

Figure 1.9

3 Press F6 and wait a few moments for the Windows Setup screen to appear.

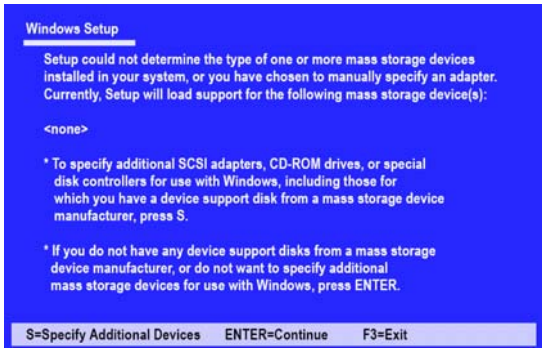


Figure 1.10 Windows Setup—Specify Devices

4 Specify the AMD drivers.

a Insert the floppy that has the RAID driver, press S, then press Enter.

The following Windows Setup screen appears:

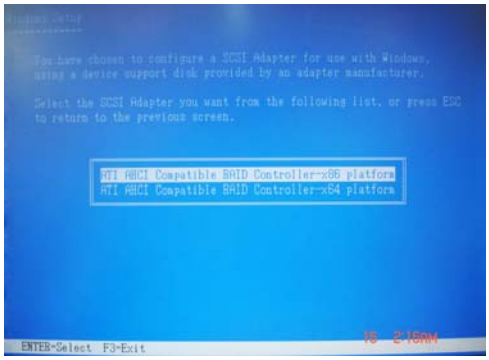


Figure 1.11 Windows Setup—Selected SCSI Adapter

b Select "ATI AHCI Compatible RAID Controller-x86 platform" and press Enter for 32-bit OS or Select "ATI AHCI Compatible RAID Controller-x64 platform" and press Enter for 64-bit OS.

The following Windows Setup screen appears listing both drivers:.

Figure 1.12 Windows Setup—AMD drives listed

5 Press Enter to continue with Windows XP Installation.

Be sure to leave the floppy disk inserted in the floppy drive until the blue screen portion of Windows XP installation is completed, then take out the floppy.

6 Follow the instructions on how to install Windows XP.

After Windows XP is completely installed, it is recommended that you install the ForceWare software in order to access the FastBuild RAID Management tool.

Note: Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.

Memo

Chapter 7
Setting Up eJIFFY

Introduction

eJIFFY is a fast boot program under Linux. Instead of waiting Windows O.S to start execution, eJIFFY is ready to provide users the instant enjoyment on web browsing, photo review and online chat just within several seconds after boot up.

Note: eJIFFY is ECS ***optional*** feature utility corresponding to the DVD activation and BIOS setup. Please check the hard copy user's guide or product color-box to see if the model has embodded eJIFFY feature. (eJIFFY icon on color-box)

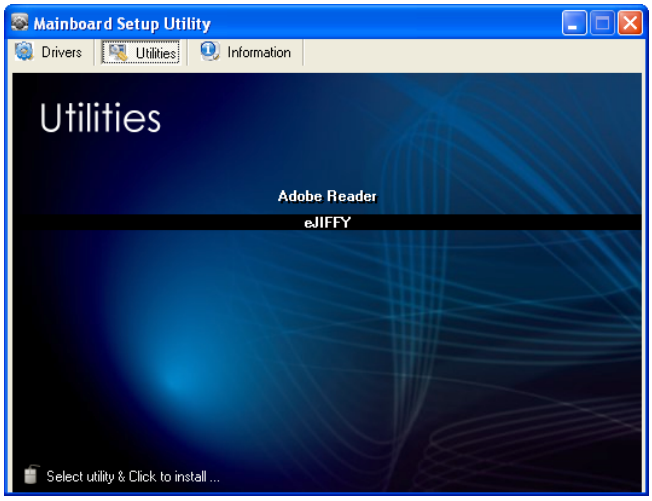
Version: 5.0

Installation and BIOS Setup

DVD Activation

Finish the DVD utility setup, and then set the BIOS to complete eJIFFY activation.

1. Insert ECS software utility DVD and enter below “Utilities” screen. Click eJIFFY feature item to install.



2. Follow the onscreen instructions to finish eJIFFY setup.

3. After setting up eJIFFY under Windows, you can switch eJIFFY display/keyboard language from English to your local language. The changes will be applied after rebooting.

Note: The keyboard language selection list offers several more regional keyboard setups to switch with the default English typing. Please refer to the usage FAQ for more tips.

4. Restart your computer after eJIFFY installation. Press <DEL> or click the BIOS Setup button on the post screen to enter the BIOS setup page after boot up.

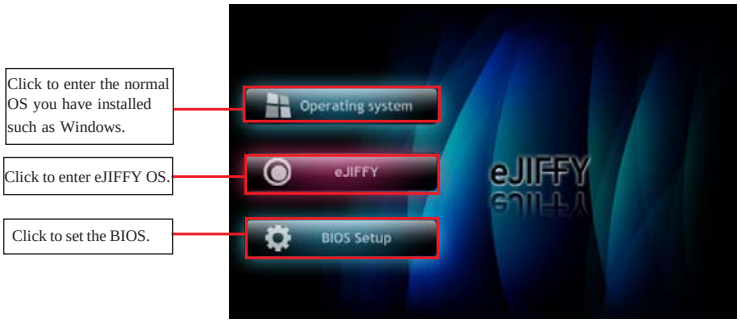
5. And then enter the *Advanced Setup* page to enable the item *ECS eJIFFY Function*. Press F10 to save the configuration and exit. Restart your computer.

Note: 1. eJIFFY is available in SATA/IDE/AHCI mode. It does not support RAID configuration and the onboard 34-pin floppy drives.

2. Please refer to ECS website for new eJIFFY application updates.

Entering eJIFFY

The post screen appears within several seconds after boot up and it has three buttons on it, Operating system, eJIFFY and BIOS Setup.



If you click eJIFFY, the following screen will appear. And If you make no choice it will enter the normal OS automatically after ten seconds.

Feature Icons

The following illustration shows the main feature icons that eJIFFY provides on the menu.

eWeb: Firefox for web browsing/webmail and watching flash video.

ePix: Photo viewing.

ePal: On-line chat tool to use the most popular IMs in the world. (MSN, ICQ, AIM, etc.)

Shows ePal on-line connection status.

Shut Down/Restart: Ends your session and turns off the computer./Ends your session and restart the computer..

Click once to connect the storage disk to your computer. Click for the second time to remove your storage disk safely. (please refer to the FAQ for more usage information.)

Shows the network connection status.

Language Control Panel

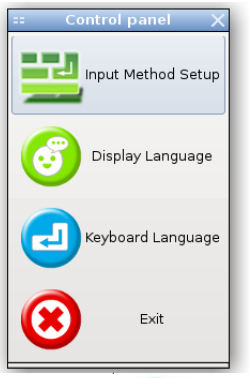
Switch Keyboard Languages

Usage FAQ

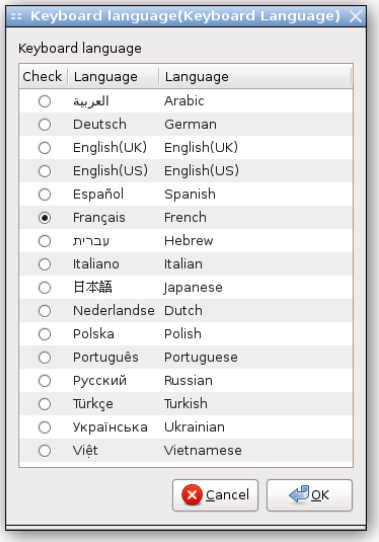
Language Control Panel: Besides setting English as the default interface, eJIFFY offers multi-language displays and keyboard settings for language-switch. Open the language control panel to select a preferable language setting.

Keyboard Language Setup

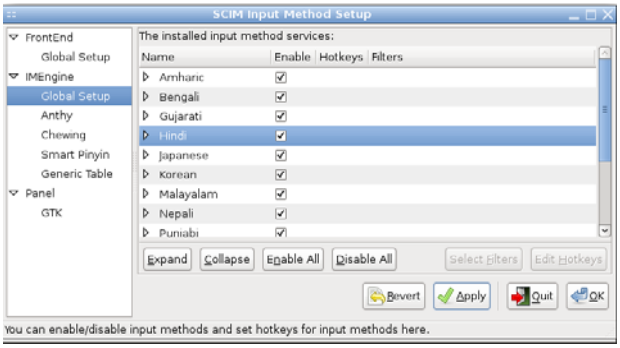
Step1. Click to open the language control panel.

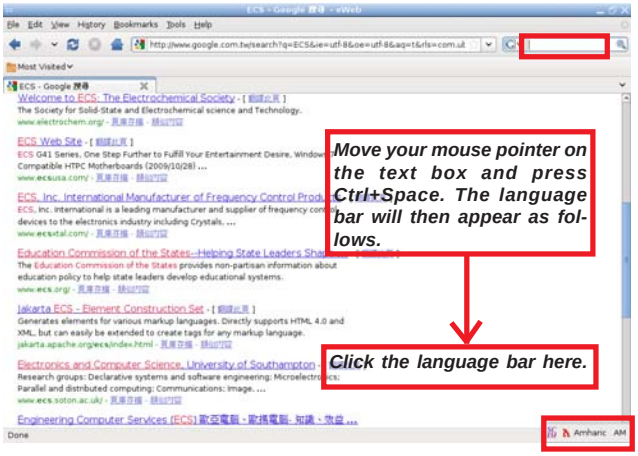


Step 2: Click “Keyboard Language” icon to open the keyboard selection list, which offers several regional keyboard settings besides default English keyboard.
Step 3: Click the selected keyboard language (e.g. French) and press “OK”.



Click to enable all possible language inputs you want to apply, and click "Apply":

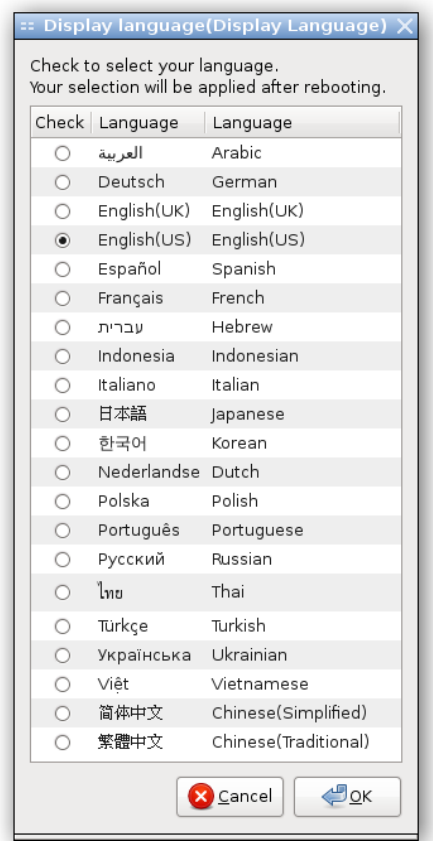




Select your desired language

How to change display language?

Open the Language Control Panel and click to show the display language list. Check your desired display language. Your selected display language will be applied after rebooting.



Note: *Details about eJIFFY please refer to eJIFFY in disk.*

Memo

Chapter 8
Trouble Shooting

Start up problems during assembly

After assembling the PC for the first time you may experience some start up problems. Before calling for technical support or returning for warranty, this chapter may help to address some of the common questions using some basic troubleshooting tips.

a) System does not power up and the fans are not running.

1.Disassemble the PC to remove the VGA adaptor card, DDR memory, LAN, USB and other peripherals including keyboard and mouse. Leave only the motherboard, CPU with CPU cooler and power supply connected. Turn on again to see if the CPU and power supply fans are running.

2. Make sure to remove any unused screws or other metal objects such as screwdrivers from the inside PC case. This is to prevent damage from short circuit.

3. Check the CPU FAN connector is connected to the motherboard.

4. For Intel platforms check the pins on the CPU socket for damage or bent. A bent pin may cause failure to boot and sometimes permanent damage from short circuit.

5. Check the 12V power connector is connected to the motherboard.

6. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

b) Power is on, fans are running but there is no display

1. Make sure the monitor is turned on and the monitor cable is properly connected to the PC.
2. Check the VGA adapter card (if applicable) is inserted properly.
3. Listen for beep sounds. If you are using internal PC speaker make sure it is connected.
   a. continuous 3 short beeps : memory not detected
   b. 1 long beep and 8 short beeps : VGA not detected

c) The PC suddenly shuts down while booting up.

1. The CPU may experience overheating so it will shutdown to protect itself. Ensure the CPU fan is working properly.
2. From the BIOS setting, try to disable the Smartfan function to let the fan run at default speed. Doing a Load Optimised Default will also disable the Smartfan.

Start up problems after prolong use

After a prolong period of use your PC may experience start up problems again. This may be caused by breakdown of devices connected to the motherboard such as HDD, CPU fan, etc. The following tips may help to revive the PC or identify the cause of failure.

1. Clear the CMOS values using the CLR_CMOS jumper. Refer to CLR_CMOS jumper in Chapter 2 for Checking Jumper Settings in this user manual. When completed, follow up with a Load Optimised Default in the BIOS setup.

2. Check the CPU cooler fan for dust. Long term accumulation of dust will reduce its effectiveness to cool the processor. Clean the cooler or replace a new one if necessary.

3. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

4. Remove the hard drive, optical drive or DDR memory to determine which of these component may be at fault.

Maintenance and care tips

Your computer, like any electrical appliance, requires proper care and maintenance. Here are some basic PC care tips to help prolong the life of the motherboard and keep it running as best as it can.

1. Keep your computer in a well ventilated area. Leave some space between the PC and the wall for sufficient airflow.

2. Keep your computer in a cool dry place. Avoid dusty areas, direct sunlight and areas of high moisture content.

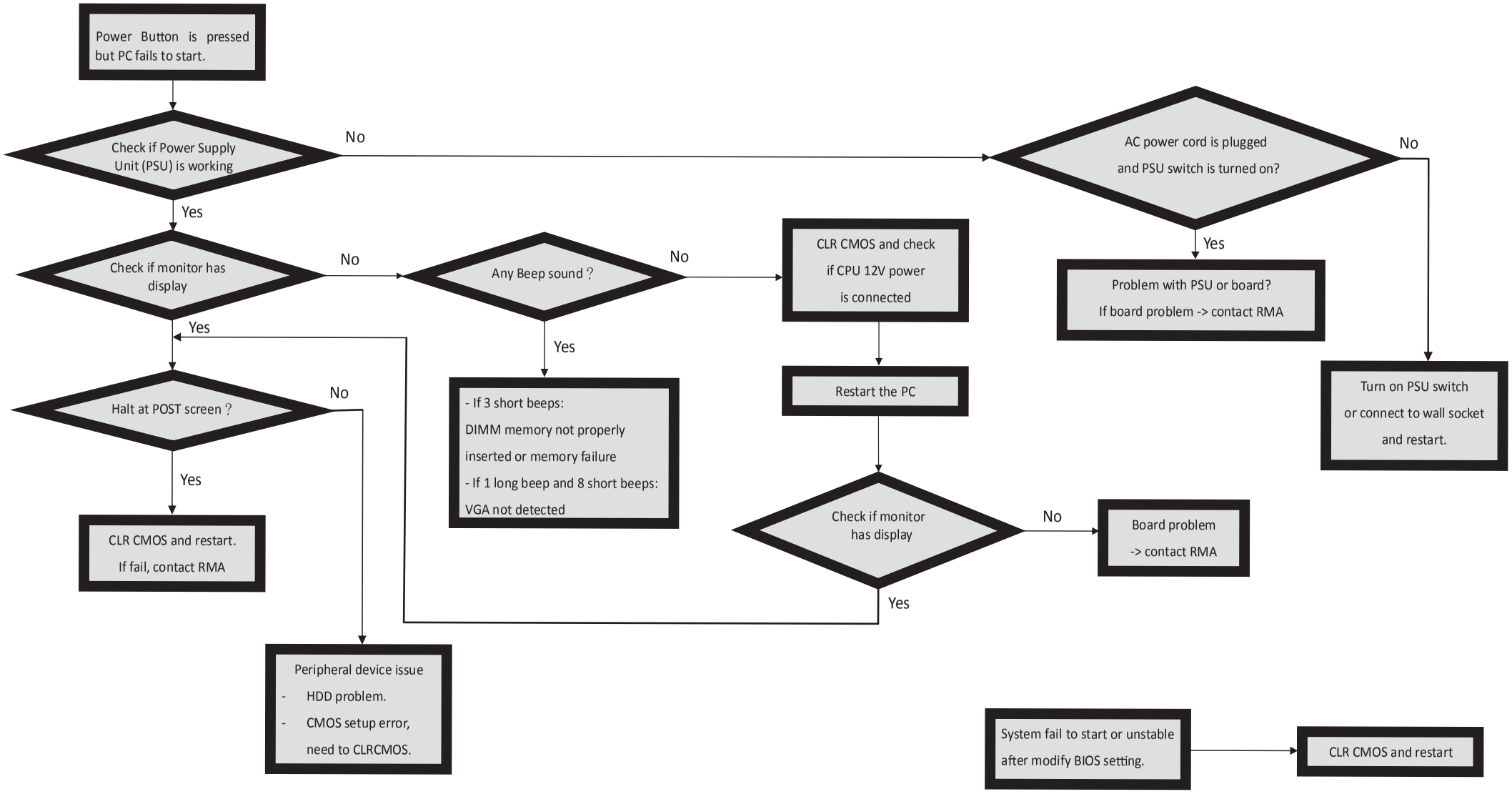
3. Routinely clean the CPU cooler fan to remove dust and hair.

4. In places of hot and humid weather you should turn on your computer once every other week to circulate the air and prevent damage from humidity.

5. Add more memory to your computer if possible. This not only speeds up the system but also reduces the loading of your hard drive to prolong its life span.

6. If possible, ensure the power cord has an earth ground pin directly from the wall outlet. This will reduce voltage fluctuation that may damage sensitive devices.

Basic Troubleshooting Flowchart



Memo